Preliminary Amendment
New U.S. Patent Application
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Amendments to the Claims

This listing of claims will replace all prior version, and listings, of claims in the application:

Listing of Claims:

1. (original) A method of identifying uncorrectable codewords in a Reed-Solomon decoder handling errors and erasures, comprising the steps of:

indicating an uncorrectable codeword when any one or more of the following conditions (a) to (f) is satisfied:

- (a) no solution to key equation $\sigma(x)T(x) \equiv \omega(x) \mod x^{2T}$;
- (b) dego(x) ≠ nerrors;
- (c) error and erasure locations coincide;
- (d) $deg\omega(x) \ge nerrors + nerasures;$
- (e) nerasures + 2*nerrors > 2T; and
- (f) an error location has a zero correction magnitude;

where nerrors and nerasures represent, respectively, a number of errors with reference to an error locator polynomial $\sigma(x)$ and a number of erasures with reference to an erasure locator polynomial $\Lambda(x)$, 2T is the strength of a Reed-Solomon code, $\omega(x)$ is an errata evaluator polynomial, and T(x) is a modified syndrome polynomial.

2. (original) The method of claim 1, comprising evaluating the condition (a) as a preliminary step, and then evaluating the conditions (b) to (f).

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- 3. (original) The method of claim 1, wherein the method comprises identifying a codeword as correctable if none of at least the conditions (a) to (f) are satisfied.
- 4. (original) The method of claim 1, wherein the method comprises indicating an uncorrectable codeword in response to condition (g) $deg\Lambda(x) \neq nerasures$.
- 5. (original) The method of claim 1, wherein the comprises receiving the error locator polynomial $\sigma(x)$, the erasure locator polynomial $\Lambda(x)$ and the errata evaluator polynomial $\omega(x)$; forming a set of error locations, and a set of erasure locations, and forming variables nerrors size and nerasures representing the of each respectively; and finding dego(x), deg Λ (x), and deg ω (x), as a degree of the error locator polynomial $\sigma(x)$, the erasure locator polynomial $\Lambda(x)$ and the errata evaluator polynomial $\omega(x)$, respectively.
- 6. (original) A detector circuit arranged to identify an uncorrectable codeword, for use in a Reed-Solomon decoder handling errors and erasures, the circuit comprising:
 - a logic unit arranged to identify each condition:
 - (a) no solution to key equation $\sigma(x)T(x) \equiv \omega(x) \mod x^{2T}$;
 - (b) $deg\sigma(x) \neq nerrors$;
 - (c) error and erasure locations coincide;
 - (d) $deg\omega(x) \ge nerrors + nerasures;$
 - (e) nerasures + 2*nerrors > 2T; and
 - (f) an error location has a zero correction magnitude;

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where nerrors and nerasures represents, respectively, a number of errors and erasures with reference to an error locator polynomial $\sigma(x)$ and an erasure locator polynomial $\Lambda(x)$, 2T is the strength of a Reed-Solomon code, $\omega(x)$ is an errata evaluator polynomial, and T(x) is a modified syndrome polynomial; and

an indicator unit arranged to indicate an uncorrectable codeword, responsive to the logic unit.

- 7. (original) The circuit of claim 6, wherein the circuit comprises a counter arranged to count nerrors and nerasures as the size of a set of error locations derived from the error locator polynomial $\sigma(x)$, and a set of erasure locations derived from the erasure locator polynomial $\Lambda(x)$, respectively.
- 8. (original) The circuit of claim 6, wherein the logic unit is arranged to identify an uncorrectable codeword in response to condition (g) $deg \Lambda(x) \neq nerasures$.

Claims 9-10 (canceled)